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10/528767

INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
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NP10 8QQ

22 MAR 2005

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P. Mahoney

Dated 13 January 2004

Patents Form 1/77

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Request for grant of a patent*(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form.)*

The Patent Office

Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference

HOLED BLADE

2. Patent application number

(The Patent Office will fill in this part)

0223882.2

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

WILLIAM ANTHONY DENNE

THE LANE HOUSE
108 CHURCH STREET
ARRET STERFORDPatents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation

CAMBRIDGE CB2 5EL
3284502001

4. Title of the invention

PERFORATED RAZOR BLADE

5. Name of your agent *(if you have one)*"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

AS IN 3 ABOVE

Patents ADP number *(if you know it)*6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country

Priority application number
*(if you know it)*Date of filing
(day / month / year)

GB

0222712.2

1-OCT-02

GB

0223527.9

10-OCT-02

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

N/A

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

NO

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicants is a corporate body.
- See note (d))

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description

2 /

Claim(s)

0

Abstract

1 /

Drawing(s)

2 - TW

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents
(please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

W. D. Denne

Date 15 OCT 02

12. Name and daytime telephone number of person to contact in the United Kingdom

01223 846191

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.
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PERFORATED RAZOR BLADE

Wet shave razor blades traditionally have a straight cutting edge that runs the length of the razor head. Safety razors have guards to control the position of the skin with respect to the cutting edge, so that the cutting edge rides over the skin but cuts protruding hair.

5

According to the present invention there is a razor blade that incorporates holes, some or all of which incorporate a cutting edge as part or all of their periphery. The holes may be in the form of an array. The blade may have an overall curvature to expose different angles of blade to the skin. The leading edge of a hole will control the

10 access of the skin to the cutting trailing edge of the hole. The blade may be formed from metal by electroforming or by grinding away dimples in a planar shim. It may also be formed by screen printing ceramic ink as an array of holes then firing the print. The rheology of the ink may be arranged so that the flow of the periphery of the wet print may form a meniscus, which becomes a polished razor edge on firing.

15 The ceramic is preferably partially stabilised or fully stabilised zirconia ceramic. The ceramic may also be ground and polished post firing if desired.

Razor blades traditionally have a straight cutting edge. An array of holes with razor edges around their periphery can provide a longer cutting edge per square millimetre
20 of blade and a tighter control of the angle at which the skin meets the blade. This should result in a more rapid and closer shave, with less chance of nicking the skin.

In a metal blade, such an array may be made by electroforming. This is relatively expensive for disposable blades, however, and nickel, which is the only practical
25 metal for this technique, is not exceptionally hard. An alternative is to form an array

PERFORATED RAZOR BLADE

of indentations in a planar metal shim, then to grind away the raised bumps to create holes surrounded by a cutting edge.

A better process still is to screen print the blade pattern with partially stabilised
5 zirconia ink. If the rheology of the ink and the nature of the substrate are carefully
chosen, the edges of the print may flow to create a wetting meniscus. On firing, this
meniscus may naturally create a polished razor edge.

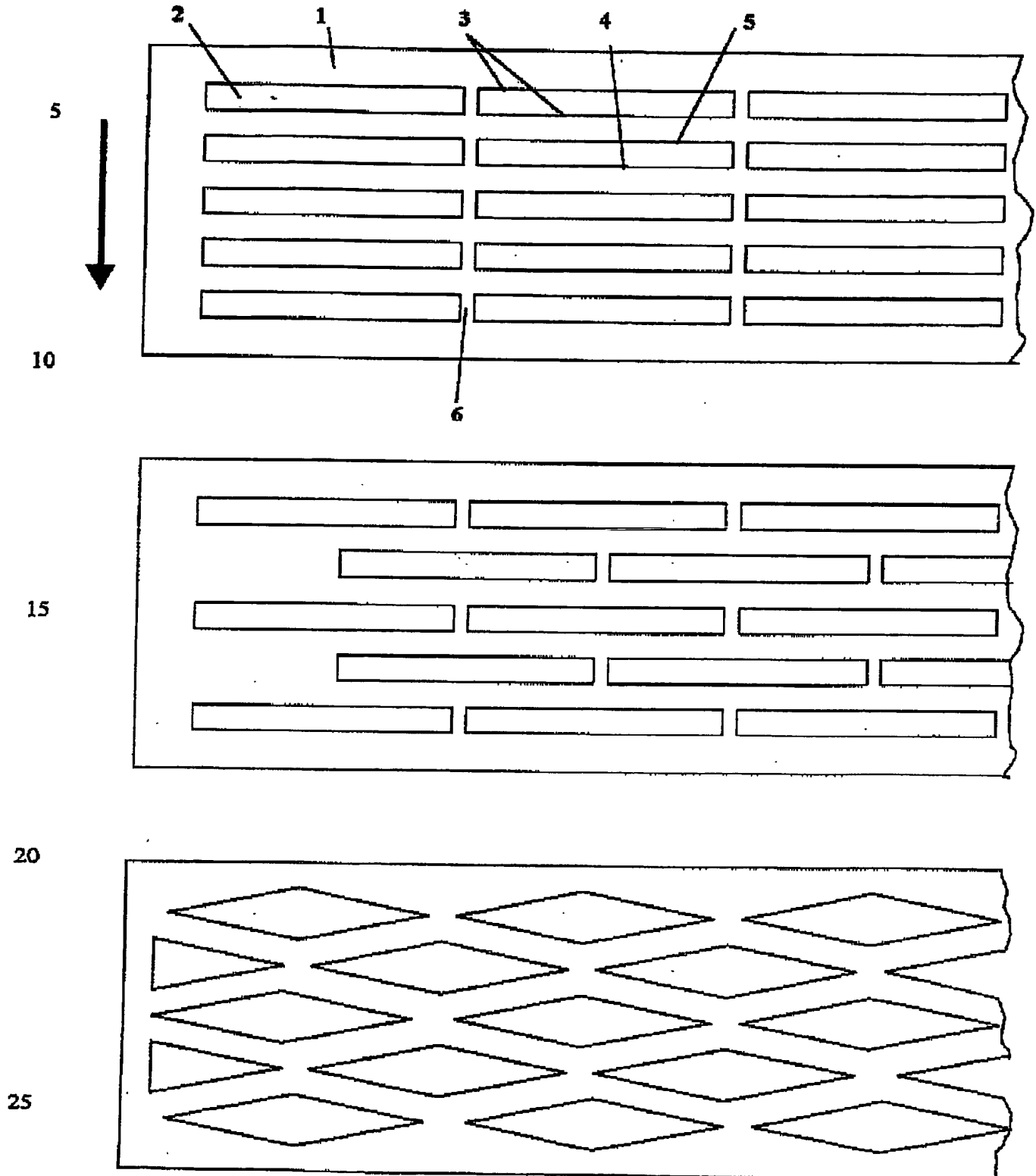
Figure 1 shows in plan form small sections of some possible arrays of holes and
10 figure 2 shows a cross- section of such an array curved and in contact with skin.

In figure 1, the metallic or ceramic substrate, 1, incorporates holes, 2, in which the
periphery, 3, is formed as a razor edge. The leading longer side, 4, provides a guard
for the skin while the trailing longer side, 5, provides the cutting edge. The
15 interconnecting spokes, 6, control the rigidity of the blade. The periphery of the
blade, 7, may be used to retain the blade in the razor. The cutting edges are well
protected within their holes. The edge of the blade is not longer in need of careful
protection. The blade may clearly be reversible in direction.

20 In figure 2, the skin, 10, is in contact with a curved blade, 11, and a hair, 12, is being
cut by a trailing edge. The curvature and flexibility of the blade may be chosen to
offer the maximum ability to follow skin contours. A number of cutting edges may be
in contact with the skin simultaneously.

PERFORATED RAZOR BLADE**Abstract**

- 5 A curved razor blade incorporating an array of holes, each of which has a knife edge periphery, offers greater cutting power and control of the skin surface than a single or double edge.

PERFORATED RAZOR BLADE**Figure 1**

PERFORATED RAZOR BLADE**Figure 2**